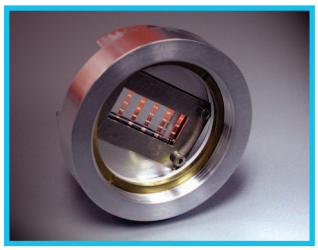
sPowering 8 LEDs in series

Micrel Semiconductor has released two new small sized DC/DC boost converters optimised for driving white LEDs in cellular, PDA, GPS, digital still camera and camcorder applications. Micrel supplies analogue, power management and high-speed communications ICs.

The MIC2289 offers the smallest total size PWM DC/DC boost solution available in the market. Available in a tiny 2x2mm MLF-8L package with three levels of over-voltage protection and performance features, it requires only four external components to provide a complete white LED driver solution.

The low component count is achieved by integrating the external Schottky diode normally required with boost regulators, saving precious board area and cost.

Fly's Eye Beam



Beam-shaping optics and beam homogenizers can be employed to shape the beam and simultaneously make the laser energy uniform so the maximum amount of the available laser power can be used.

JPSA Laser's new Fly's Eye Beam Homogenizer converts the characteristically non-uniform beam of a UV Excimer laser into a homogeneous beam with 95% uniformity while utilizing >80% of the laser power. This long working distance single element array easily adapts to most commercial excimer lasers, and offers optimum price/performance ratio (single element for lowest cost and lowest beam loss). The JPSA Fly's Eye Beam Homogenizer's long working distance - typically between 1 - 2 meters - provides a beam size ranging from 8mm to 1.5cm. It is easily re-imaged due to the long working distance and slow optical F-number. Excimer laser beams are not perfectly uniform in intensity over the area of the beam and therefore only a portion of the area of the beam is usable for high-uniformity materials processing. In some cases, only the most uniform section or "filet" of the beam will be selected for use, and the non-uniform section of the laser beam will be discarded. Due to the premium price associated with UV photons, high beam utilisation in many cases is a key economic factor. Beam shaping optics and beam homogenisers can be employed to shape the beam and simultaneously make the laser energy uniform so that the maximum amount of the available laser power can be used. The resultant uniform, large area beam can then be subdivided using near-field imaging to project complex patterns onto a part or make simultaneous multiple laser ablations, a key advantage of UV Excimer lasers.

GaAs optical processing escapes the laboratories

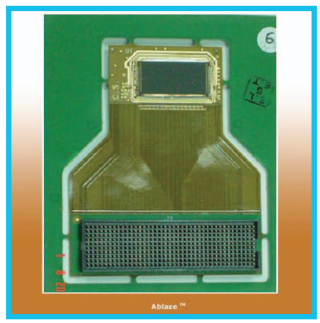
Lenslet Ltd, specialising in optical digital signal processing, has demonstrated EnLight, a commercial optical digital signal processor, at the MILCOM exhibition in Boston, MA. The processor is specified to run at a speed of 8 Tera (8,000 Giga) operations per second, a thousand times faster than any known DSP, enabling new applications in the fields of defence, homeland security, multimedia and communications.

Ablaze is the Spatial Light Modulator (SLM) in the optical core of the optical digital signal processor EnLight256, with a speed of 8 Tera operations per second and optimised for operating as a standalone product. The SLM uses advanced Multiple Quantum Well (MQW) GaAs technology and is a two dimensional 8-bit resolution, reflective mode intensity modulator. It operates at a low level voltage, high efficiency, high contrast ratios, low insertion loss and high frame rates, in comparison to existing solutions.

The Ablaze characteristics makes it an attractive solution for many applications requiring a MQW SLM 2D Modulator, such as optical processors, free-space optical communications, optical correlators, laser beam control, high density and high capacity data storage, high bandwidth I/Os onto a CMOS chip, medical, industrial and defence applications and many more.

Software on the EnLight256 is developed using three main tools: MATLAB APL bit exact simulator; APL Studio bit exact and cycle exact simulator and the APL Studio Emulator. These were developed to ensure a smooth development path starting with floating point MATLAB algorithm development, through fixed-point EnLight optimised algorithm to running and debugging code on EnLight.

"This quantum leap in computation performance, enabled by optical processing, opens the door to new capabilities in the battlefield of the future, creating strategic implications. This new development will revolutionise the nature of warfare with an effect similar to those caused by the appearance of the tank or the airplane," says Major-General Isaac Ben- Israel, former head of R&D Directorate of the Israeli Ministry of Defense.



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Lenslet was set up in '99, HQ in Herzelia Pituach. It employs over 30 specialists and engineers to making optical processing a commercial reality after some some 30 years in academic laboratories.